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**Future Time Perspective and Promotion Focus as Determinants of Intra-individual
Change in Work Motivation**

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Abstract

In the near future, workforces will increasingly consist of older workers. At the same time, research has demonstrated that work-related growth motives decrease with age. Although this finding is consistent with life span theories, such as the Selection Optimization and Compensation model, we know relatively little about the process variables that bring about this change in work motivation. Therefore, we use a four-wave study design to examine the mediating role of future time perspective and promotion focus in the negative association between age and work-related growth motives. Consistent with the SOC model, we found that future time perspective was negatively associated with age, which in turn was associated with lower promotion focus, lower work-related growth motive strength, and lower motivation to continue working. These findings have important theoretical implications for the literature on aging and work motivation and practical implications for how to motivate older workers.

Keywords: aging, growth work motives, motivation to continue working, future time perspective, promotion focus

Word count: 6,554

As workforces continue to age worldwide, research on the relationship between age and work motivation has burgeoned (De Lange, Van Yperen, Van der Heijden & Bal, 2010; Kanfer & Ackerman, 2004; Kanfer, Beier, & Ackerman, 2013; Kooij, De Lange, Jansen, Kanfer, & Dikkers, 2011; Kooij, De Lange, Jansen, & Dikkers, 2013; Rabl, 2010). A uniform finding in these studies is that older workers report lower approach motivation (focusing on attaining task-based or intrapersonal standards of competence; Elliot, 1999) and lower growth work motives (i.e., the perceived importance or preference for job characteristics and work outcomes that relate broadly to achievement and mastery; Dweck, 1999) compared to younger workers. Although this finding is consistent with life span theories, such as the Selection Optimization and Compensation model (Baltes & Baltes, 1990), relatively little is known about age-related changes in the process variables that bring about these changes in work motivation. Understanding the processes that contribute to lower growth work motives has important practical implications for helping organizations develop more effective strategies for motivating their aging workers to continue working.

The Selection Optimization and Compensation (SOC) model (Baltes & Baltes, 1990) proposes that individuals will allocate fewer resources to growth with advancing age. The SOC model further argues that this shift in the allocation of resources is caused by age-related losses in resources, such as the perception of time (e.g., Freund & Ebner, 2005). When time is perceived as expansive, open-ended development goals aimed at optimizing the future are prioritized (see also Bal, Jansen, Van der Velde, De Lange, & Rousseau, 2010). However, with a less expansive future time perspective, the utility of development goals is likely to decline as individuals perceive that such goals may no longer be attainable in the limited life time remaining. In other words, age-related decline in future time perspective is posited to shift attention away from development goals and consequently reduce the strength of growth-related motives at work, which in turn reduces motivation to continue working. The purpose

of this study is to test these age-related changes in the process variables that bring about changes in work motivation. Specifically, we posit that age-related decline in future time perspective will be associated with a decline in promotion focus, which in turn will be associated with a decline in work-related growth motives and motivation to continue working over time.

This is the first study to empirically demonstrate the mechanisms and processes by which work motivation changes with age over time. As such, the current study contributes to existing knowledge in two ways. First, building on Kooij and Van De Voorde (2011), who found that future time perspective (FTP) is positively associated with growth work motives, this study looks at the mechanisms by which FTP affects growth work motives. Specifically, based on the SOC model and literature (Baltes & Baltes, 1990), we examine the mediating role of promotion focus. We propose that declines in FTP are associated with declines in general motivational orientation (i.e., promotion focus), which in turn are associated with a decline in growth work motives and motivation to continue working. These findings also provide evidence for the mechanisms that explain previous findings showing an association between FTP and work outcomes (e.g., Bal et al., 2010).

Second, this study builds on Kooij, De Lange, Jansen, and Dikkers (2013) who found cross-sectionally that FTP mediates the negative age – growth work motives association, by using a multi-wave design that permits understanding the unfolding of age-related processes over time. Similar to Kooij et al. (2013), the majority of previous studies that investigated the relationship between age-related process-variables and work outcomes employed cross-sectional designs or relatively short time frames (e.g., Bal et al., 2010; Bal, De Lange, Zacher, & Van der Heijden, 2013; Zacher, Heusner, Schmitz, Zwierzanska, & Frese, 2010). However, a longer time frame is needed to permit analysis of age-related intra-individual changes over time. To our knowledge, this is the first study to concurrently examine intra-

individual change and work outcomes over a 3-year period. In sum, building upon the SOC model (Baltes & Baltes, 1990), we propose a theoretical model that posits the psychological pathway by which calendar age influences work-related growth motive strength and motivation to continue working through future time perspective and promotion focus. Figure 1 provides an overview of this model.

 Insert Figure 1 about here

Age, Future Time Perspective, and Promotion Focus

Aging refers to changes that occur in biological, psychological, and social functioning over time (De Lange, Taris, Jansen, Smulders, Houtman, & Kompier, 2006; Sterns & Miklos, 1995), and as such, involves biological, psychological, and social maturation (Birren & Cumminghan, 1985). Psychological maturation refers to multiple change trajectories. Kanfer and Ackerman (2004), for example, review evidence for different trajectories with respect to age-related changes in cognitive abilities, with age-related loss in fluid intellectual abilities (such as working memory) over the life span and age-related gain in measures of crystallized intelligence that assess general knowledge.

Socioemotional Selectivity Theory and research (Carstensen, 1995; Lang & Carstensen, 2002) posits a second influence of aging related to change in the perception of time, from emphasizing the “life lived from birth” (past self-image) to the “life left until death” (future sense of self) (Neugarten, 1968). Carstensen (1995; 2006) refers to this changing time perception as future time perspective (FTP), which she defined as an individual’s perception of his or her remaining time to live. According to Lang and Carstensen (2002), calendar age represents a primary antecedent of FTP. Several studies

(Carstensten, Issacowitz, & Charles, 1999; Cate & John, 2007; Zacher & Frese, 2009) provide support for the negative association between age and FTP. Consistent with these findings, we hypothesize that:

Hypothesis 1: Calendar age is negatively related to FTP.

Carstensen (2006) proposes that the perception of time plays an important role in the prioritization of goals; when individuals perceive their remaining time in life as expansive, they will prioritize more long-term goals aimed at optimizing the future. Higgins (1997) argued that these types of aspirations and accomplishments involve a promotion goal focus.

In his Regulatory Focus theory, Higgins (1997) proposed that individuals attain their goals (i.e., achieving pleasure and avoiding pain) through self-regulatory strategies. Individuals who self-regulate by focusing on promotion, approach gains and avoid non-gains, and so they focus on aspirations and accomplishments. Adopting a promotion focus is a function of situational and dispositional factors (Brockner & Higgins, 2001). Therefore, regulatory focus has been operationalized both in terms of situational states and chronic tendencies, which have been found to have similar consequences (De Cremer, Mayer, Van Dijke, & Schouten, 2009; Higgins, 1997; Lockwood, Jordan, & Kunda, 2002; Pennington & Roese, 2003). Here we focus more on promotion focus as a state (i.e., changing over time with age and future time perspective).

Pennington and Roese (2003) examined the influence of future time perspective on regulatory focus. According to Pennington and Roese (2003), time can be regarded as a resource. They argue that individuals with a temporally distant perspective have enough time to envision optimal outcomes, to consider alternative strategies, and to survey information widely. Individuals with a distant-future time perspective are thus able to strive for desired, maximal outcomes (i.e., gains). Therefore, Pennington and Roese (2003) expected and found that a distant-future time perspective increases promotion focus. When individuals have an

expansive FTP, and are thus able to envision their remaining time in life, they perceive time as a resource which is widely available and they are more likely to focus on promotion goals. In contrast, individuals with a less expansive future time perspective do not have time to correct mistakes, resulting in a more restrained and cautious approach to goal attainment, and thus a decreased emphasis on promotion strategies. Based on the above reasoning, we hypothesize:

Hypothesis 2: FTP has a positive influence on promotion focus.

Since age is negatively related to FTP and FTP has a positive influence on promotion focus, we expect that FTP will mediate the negative association between age and promotion focus (see also Freund & Ebner, 2005). This mediating effect can be explained by the SOC model (Baltes & Baltes, 1990; Baltes, Staudinger, & Lindenberger, 1999). Based on the SOC model (Baltes et al., 1999), Ebner et al. (2006) argue that increased resource limitations in old age make it increasingly necessary and beneficial to stop investing resources in striving for gains. Consistently, they found that older adults report a significantly lower goal orientation toward growth than younger and middle-aged adults (see also Freund, 2006; Kanfer & Ackerman, 2004). However, they also found that when growth goals were described as requiring the investment of more resources than other goals, both younger and older adults showed a less strong behavioral preference for growth goals than for these other goals. These findings suggest that changes in goal orientation are a function of the amount of resource investment needed to attain the goal, and thus that it is not age per se that drives the shift in goal orientation across adulthood. Freund and Ebner (2005) and Ebner et al. (2006) point toward future time perspective as a potential resource, mediating the relation between age and promotion focus. Therefore, we hypothesize:

Hypothesis 3: FTP mediates the negative association between age and promotion focus.

Future Time Perspective, Promotion Focus, and Growth work motives

Age-related changes in goal focus have important implications for work motivation (De Cremer et al., 2009; Kanfer & Ackerman, 2004). Since Higgins (1997) specifically linked promotion focus to needs for growth (see also Kluger, Stephan, Ganzach, & HersHKovitz, 2004), we focus on work-related growth motives in this study. According to Ronen (1994), employees express their needs through work-related motives. In this line of reasoning, work-related motives are thought of as secondary, socialized drivers of action or behavior, partially determined by primary personal needs and partially acquired through cognition and experience (Kalleberg, 1977; Latham & Pinder, 2005; Ronen, 1994). Therefore, we define work-related motives as the unconscious and conscious importance workers attach to job characteristics and work outcomes (Baard, Deci & Ryan, 2004; Dose, 1997; Kooij et al., 2011; Latham & Pinder, 2005). More specifically, we define growth work motives as the perceived importance or preference for job characteristics and work outcomes that relate broadly to achievement and mastery (Dweck, 1999), such as motive strength for challenging work.

Brockner and Higgins (2001) argue that individuals with a promotion focus are motivated mainly by growth and development motives. Individuals with a higher promotion focus are more likely to strive for goals related to aspirations and accomplishments and thus have higher growth motives at work. Therefore, we hypothesize:

Hypothesis 4: Promotion focus has a positive influence on growth work motives.

Since future time perspective (FTP) is positively related to promotion focus and promotion focus has a positive influence on growth motives at work, we expect that promotion focus will mediate the positive association between FTP and growth work motives. Zacher et al. (2010) argue that FTP is an important factor in the work setting that influences worker attitudes and behavior. Similarly, Bal et al. (2010) expected and found that FTP was

positively related to developmental psychological contract fulfillment among post-retirement workers. They argued that individuals with an expansive FTP are more likely to see many opportunities in life and at work, and thus are more inclined to look for organizations and employment opportunities that fulfill their needs for long-term employment and development. Seijts (1998) reviewed the literature on FTP and motivation and found that FTP has profound effects on human motivation. He argued that FTP is related to motivation because it determines the type of goals that are set. In line with this reasoning Joireman, Shaffer, Balliet, and Strathman (2012) found that promotion goal focus explains why future oriented individuals engage in positive health behavior. Therefore, we expect that promotion focus will increase with FTP, which in turn results in increased work-related growth motives. Hence, we hypothesize:

Hypothesis 5: Promotion focus mediates the positive association between FTP and growth work motives.

Growth work motives and motivation to continue working

Finally, we predict that growth work motives will be positively associated with motivation to continue working. Motivation to continue working is a rather new concept (e.g., Armstrong-Stassen, 2008; Kooij, De Lange, Jansen, & Dijkers, 2008), which in particular addresses the work motivation of older workers who are eligible for retirement. As pointed out by Kanfer et al. (2013), although research on determinants of older worker decisions to continue working past normative retirement age is expanding, few studies have distinguished between goals and motivation *at work* and motivation *to work* as they change over time. Similar to the SOC model, Kanfer and Ackerman (2004) argue that age-related shifts in the prioritization of goals are caused by intra-individual change trajectories, such as the perception of time. In addition, Kanfer and Ackerman's (1989) resource model predicts that individuals allocate personal resources, such as effort and time, toward goal

accomplishment based on perceptions of the utility of outcomes or performance. Therefore, age-related changes in motive strength (that is, motivation at work) influence motivation to work. For example, employees with high growth work motives are likely to perceive a high utility of work outcomes, such as learning something new. To accomplish these work motives, they will allocate more resources to work, thereby increasing their motivation to continue working. In line with this reasoning, Armstrong-Stassen and Ursel (2009) found a positive association between HR practices aimed at development and motivation to continue working. In sum, we hypothesize:

Hypothesis 6: Growth work motives have a positive influence on motivation to continue working

In summary, we propose that previously observed negative associations between age and work-related growth motives (e.g., Kooij et al., 2011) and subsequent motivation to continue working arise as a consequence of psychological changes in FTP and promotion focus. Consistent with the SOC model, we evaluate the impact of intra-individual changes in FTP and promotion focus on work motivation over time.

Method

Participants and Procedure

To study the mediation process between aging and growth work motives, we used four waves of yearly longitudinal data collected as part of a larger study on Human Resource Management and employee motivation in a Dutch university from 2008-2011 (see Kooij & Van De Voorde, 2011 and Kooij, De Lange, Jansen, & Dijkers, 2013). In the first year, an on-line questionnaire was sent to 3,812 current employees, with 1,429 employees providing completed questionnaires (a response rate of 37.5%). The second questionnaire was sent one year later to these respondents, and 765 out of 1,429 employees returned the questionnaire,

resulting in a 54% response rate. The third questionnaire was sent in 2010 to all individuals who had responded to the second questionnaire, yielding a response rate of 64 percent (489 out of 765 employees). The fourth questionnaire was sent one year later, with 345 of the 489 employees completing this questionnaire (response rate of 70%).

Non-response Anova analyses between T1 and T4 revealed that those who dropped-out or left the university after the first wave of data collection (i.e., at T2, T3, or T4; $N = 1086$) and those who completed all four surveys ($N = 345$) did not differ significantly on gender ($F(1, 1427) = 0.11, p = .746$), educational level ($F(1, 1427) = .17, p = .679$), work status (part vs full time work) ($F(1, 1427) = 1.51, p = .220$), and occupational family ($F(1, 1427) = 2.68, p = .102$). However, significant differences were obtained between drop-outs and respondents on age ($F(1, 1422) = 28.95, p < .001$), organizational tenure ($F(1, 1427) = 30.62, p < .001$), FTP ($F(1, 1329) = 14.27, p < .001$), and growth motive strength ($F(1, 1305) = 4.05, p = .044$). In comparison to persons who completed all waves of the study, drop-outs were younger ($1081_{\text{drop-outs}}, M = 41.1; 343_{\text{responders}}, M = 44.9$), had less tenure with the organization ($1086_{\text{drop-outs}}, M = 9.1; 343_{\text{responders}}, M = 12.3$), and reported initially higher levels of FTP ($994_{\text{drop-outs}}, M = 3.3; 337_{\text{responders}}, M = 3.1$) and growth work motive strength ($971_{\text{drop-outs}}, M = 5.9; 336_{\text{responders}}, M = 5.8$). Since younger workers with higher levels of FTP and growth work motive strength dropped out, the test of our hypotheses is more conservative. Since we did not measure promotion focus and motivation to continue working at Time 1, we conducted a non-response analysis between T2 and T4 for promotion focus and motivation to continue working. Respondents who dropped-out or left the university after the second wave and respondents who completed all waves of the survey did not differ significantly on promotion focus ($F(1, 640) = 1.74, ns; 327_{\text{drop-outs}}, 315_{\text{responders}}$) and motivation to continue working ($F(1, 738) = .12, ns; 401_{\text{drop-outs}}, 339_{\text{responders}}$).

Several respondents failed to complete all sections of the questionnaires. Since nine variables were crucial for our analyses, we decided to delete respondents with missing values on all items of one or more of these variables from the sample. In the sample of respondents who completed all four waves of data collection, eight respondents had missing values on all items of one variable and 36 respondents had missing values on all items of two or more variables, resulting in a final sample of 301 respondents. Among the final sample of participants, the average age was 45.2 years ($SD = 10.5$, ranging from 19 to 67), and 53% were female. The majority of the sample (84%) held at least a bachelor's degree, average organizational tenure was 12.5 ($SD = 10.4$), and average job tenure was 6.7 (at Time 1; $SD = 7.7$). The respondents reported on average to have good health ($M=3.4$ on a scale from 1 = bad to 5 = excellent). 24.9% of the sample held a management position, 39.9% were scientific staff, and 60.1% were considered administrative staff (the proportions of which were not significantly different for male or female workers). Overall, 54.5% of the participants worked fulltime (60.8% of scientific staff; 50% of administrative staff).

Measures

Calendar age. Calendar age was measured at Time 1 by asking respondents to fill in their age in years.

Future Time Perspective. FTP was assessed at Times 1 and 2 using the Future Time Perspective Scale by Carstensen and Lang (1996). Confirmatory Factor Analysis (CFA, Jöreskog & Sörbom, 2005) with the ten items indicated that three items had factor loadings below .40 (i.e., 'There are only limited possibilities in my future', 'I have the sense that time is running out', and 'As I get older, I begin to experience time as limited' (all three items reverse coded). As recommended by Hu and Bentler (1999), these items were deleted from further analyses due to their unreliability. Next, since earlier research on FTP (e.g., Zacher & Frese, 2009; Zacher, 2013) distinguished between remaining time and remaining

opportunities and following a reviewer suggestion, we ran a two-factor CFA on the 7 items. Consistent with Zacher and Frese (2009), this two-factor CFA ($\chi^2 = 91.21$, $df = 13$, CFI = .92, RMSEA = .14) fitted the data better than the one-factor model ($\chi^2 = 109.77$, $df = 14$, CFI = .90, RMSEA = .15; $\Delta \chi^2 (1) = 18.56$, $p < .001$). Following Carstensen's (1995) definition of FTP as an individual's perception of his or her remaining time to live, we used the four items that comprised the remaining time factor in subsequent analyses: "Most of my life lies ahead of me", "My future seems infinite to me", "I could do anything I want in the future" and "There is plenty of time left in my life to make new plans". We referred to this dimension as 'future time perspective' throughout the manuscript. Participants responded to each item using a five-point response scale (1 = 'strongly disagree' to 5 = 'strongly agree'). Cronbach internal consistency reliabilities of the scale were acceptable, with reliabilities of .77 at Time 1 and .73 at Time 2. Test-retest reliability or stability score of the measure over the one year time frame was strong (.76), indicating a general maintenance of individuals' rank order on the measure.

Promotion focus. Promotion focus was measured at Times 2 and 3 with a shortened version of the nine item scale developed by Lockwood et al. (2002). To make the scale appropriate for the sample in this study, the word 'academic' was deleted in two items. Although Lockwood et al. (2002) measure chronic promotion focus, the results obtained with this measure are similar to the results obtained in studies in which promotion focus was primed (e.g., De Cremer et al., 2009; Lockwood et al., 2002; Pennington & Roese, 2003). CFA (Jöreskog & Sörbom, 2005) with the nine items indicated that three items had factor loadings below .40 (i.e., 'In general, I am focused on achieving positive outcomes in my life', 'I often imagine myself experiencing good things that I hope will happen to me', and 'Overall, I am more oriented toward achieving success than preventing failure'). These items were deleted from further analyses due to their unreliability. Items were answered on a nine-

point response scale (1 = 'not at all true of me' to 9 'very true of me'). Example items are 'I frequently imagine how I will achieve my hopes and aspirations' and 'My major goal right now is to achieve my ambitions'. The reliability of the final 6-item scale at both Time 2 and 3 was .86. Test-retest reliability or stability score of the measure over the one year time frame was also strong (.69), indicating a general maintenance of individuals' rank order on the measure.

Growth work motives. Individual differences in growth work motive strength were assessed at Times 3 and 4. Based on prior theorizing and research by Dweck (1999), Kanfer and Ackerman (2000), and Ronen (1994), growth work motive strength was operationalized as the perceived importance or preference for job characteristics and work outcomes related to achievement and mastery. A four-item measure, developed by Kooij & Van De Voorde (2011), was used in which participants were asked to rate the importance they attached to certain job features or work outcomes on a 7-point scale (from 1 = totally not important to 7 = very important; e.g., 'How important is the opportunity for personal development for you?'). The reliability of this scale was respectively .85 and .89 at Time 3 and 4. Test-retest reliability or stability score of the measure over the one year time frame was also strong (.64), indicating a general maintenance of individuals' rank order on the measure.

Motivation to continue working. Motivation to continue working was measured at Times 3 and 4 with the three-item scale of Armstrong-Stassen (2008). An example item is: 'I expect to continue to work as long as possible in this organization'. However, we deleted 'in this organization' from the items because we were interested in capturing employees' general motivation to continue working. Response categories ranged from 1 = strongly disagree to 5 = strongly agree. The reliability of this scale was respectively .92 and .91 at Time 3 and 4. Test-retest reliability or stability score of the measure over the one year time frame was also strong (.73), indicating a general maintenance of individuals' rank order on the measure. In

sum, two of our measures were general (i.e., FTP and promotion focus) and two were specific to the work context (i.e., growth work motives and motivation to continue working).

Model Specification and Statistical Analysis

Our study design is appropriate for examining mediation effects over time. To test our hypotheses, the hypothesized model (Model 1) was fitted to the data with structural equation modeling using AMOS 19 (Arbuckle, 2006). Please note that this and the following models include stabilities and therefore predict residual changes over the 1-year study period. Further, we tested mediation models. Since we tested a three-path mediated effect, we included direct paths from age to promotion focus in Model 2, direct paths from FTP to growth work motives in Model 3, and direct paths from age to growth work motives in Model 4 (see also Carmeli, Ben-Hador, Waldman, & Rupp, 2009). We tested these mediating relationships through a series of nested model comparisons, as recommended by James, Mulaik, and Brett (2006) among others. Additionally, we used the bootstrapping method to test the significance of the indirect effect. Shrout and Bolger (2002) explain that this method estimates the sampling distribution of the indirect effect by repeatedly drawing random samples with replacement from the original data, providing bootstrapped confidence intervals to test the indirect effect for significance.

All the models were tested with structural equation modeling using AMOS 19 (Arbuckle, 2006). For the latent endogenous variables, it is recommended to use partial disaggregation models because latent factors need more than one indicator for a model to be identified (Bagozzi & Edwards, 1998; Yuan, Bentler, & Kano, 1997). This means that for the promotion focus and growth work motives measures, item parcels were used instead of the scale scores as indicators of the latent variable. Following Little, Cunningham, Shahar, and Wideman (2002), we combined item parcels by using the two items with the highest factor loadings to anchor two parcels, and then repeatedly adding the two items with the next highest

factor loadings to the anchors in an inverted order. Item parceling was conducted based on the fact that the constructs had acceptable reliabilities (Cronbach's $\alpha > .80$). We used the observed score for calendar age, because this variable was measured with one item and we used the three items as indicators of motivation to continue working. Since Cronbach's α was not $> .80$ for future time perspective, we used the four items as indicators of future time perspective.

To evaluate model fit, we followed Bollen and Long (1993) as well as Hu and Bentler's (1998; 1999) recommendation by using multiple indices of fit, including the Comparative Fit Index (CFI; acceptable above .90 and good above .95), and the Root Mean Square Error of Approximation (RMSEA; acceptable below .08, but preferably close to .06). Further, we used chi-square difference tests to compare nested models.

CFAs were conducted to assess the measures' factor structure in Amos 19.0 (Arbuckle, 2006). We fitted different models at Time 2, 3, and 4; the hypothesized four-factor model (M1), a three-factor model in which promotion focus and growth work motives loaded on the same factor (M2), a three-factor model in which FTP and promotion focus loaded on the same factor (M3), a three-factor model in which growth work motives and motivation to continue working loaded on the same factor (M4), and a single-factor model (M5). Table 1 reports the fit indices of the different models. This table reveals that the four-factor model fitted the data well at each time point and significantly better than a one- or three-factor model (see also Zacher & De Lange, 2011). All of the factor loadings of the items on their respective factors were significant and ranged from .55 to .96.

Insert Table 1 about here

Results

Descriptive Statistics

Table 2 reports the means, standard deviations and correlations of the key variables. In line with our hypotheses, age is negatively related to FTP (T1: $r = -.60$, $p < .001$; T2: $r = -.59$, $p < .001$), and promotion focus (T2: $r = -.35$, $p < .001$; T3: $r = -.41$, $p < .001$), FTP at Time 1 and 2 is positively related to promotion focus at Time 2 and 3 with correlations ranging from $r = .36$, $p < .001$ to $r = .44$, $p < .001$ and to growth work motives at Time 3 and 4 with correlations ranging from $r = .17$, $p < .001$ to $r = .24$, $p < .001$, promotion focus at Time 2 and 3 is positively related to growth work motives at Time 3 and 4 with correlations ranging from $r = .34$, $p < .001$ to $r = .41$, $p < .001$, and growth work motives at Time 3 and 4 is positively related to motivation to continue working at Time 3 and 4 with correlations ranging from $r = .25$, $p < .001$ to $r = .35$, $p < .001$. All requirements for mediation effects were thus met for all waves (MacKinnon, Fairchild, & Fritz, 2007). Age is not related to growth work motives at Time 3 and 4 (T3: $r = -.09$, $p = .13$; T4: $r = -.09$, $p = .11$). Changes over time in FTP, promotion focus, growth work motives, and motivation to continue working were small. The relative strength of the correlations was similar across administrations.

Insert Table 2 about here

Model Fit and Hypotheses Testing

The fitted hypothesized model is shown in Figure 2. The proposed full mediation model had an acceptable fit ($\chi^2 = 637.91$, $df = 213$, CFI = .91, RMSEA = .08).

Insert Figure 2 about here

As expected, age was negatively related to FTP at Time 2 ($\beta = -.24, p = .002$), providing support for Hypothesis 1. Hypothesis 2 was also supported; FTP at Time 2 has a positive association with promotion focus at Time 3 ($\beta = .21, p < .001$). Thus, a change in FTP has a positive association with a change in promotion focus. To evaluate whether FTP mediated the negative association between age and promotion focus, we included paths from age to promotion focus at Time 3 (Model 2). Table 3 reveals that this partial mediation model did not obtain a significantly better fit than the full mediation model ($\Delta \chi^2 (1) = .11, p = .740$) and the path from age to promotion focus at Time 3 was not significant ($p = .738$). In addition, bootstrap analyses revealed a significant indirect effect of age on promotion focus at Time 3 via FTP at Time 2 (standardized effect = $-.05, p = .002$). Therefore, Hypothesis 3 was supported.

Insert Table 3

Further, Hypothesis 4 was supported; promotion focus at Time 3 has a positive association with growth work motives at Time 4 ($\beta = .16, p = .004$). Thus, a change in promotion focus has a positive association with a change in growth work motives. To evaluate whether promotion focus mediated the positive association between FTP and growth work motives, we included paths from FTP at Time 2 to growth work motives at Time 4 (Model 3). Table 3 reveals that this partial mediation model did not obtain significant better fit than the full mediation model ($\Delta \chi^2 (1) = 1.35, p = .245$) and the path from FTP at Time 2 to growth work motives at Time 4 was not significant ($p = .246$). In addition, bootstrap analyses confirmed a significant indirect effect of FTP at Time 2 on growth work motives at Time 4 via promotion focus at Time 3 (standardized effect = $0.032, p = .008$). Therefore,

Hypothesis 5 was supported; a change in promotion focus mediated the positive association between a change in FTP and a change in growth work motives.

In addition, we also constructed a model with a direct path from age to growth work motives to evaluate whether there is an indirect effect of age on growth work motives via FTP and promotion focus (Model 4, see Carmeli et al., 2009 for a similar approach). Table 3 reveals that this partial mediation model did not obtain a better fit than the full mediation model ($\Delta \chi^2(1) = .68, p = .410$), and the path from age to growth work motives at Time 4 was not significant ($p = .404$). Bootstrap analyses confirmed a significant indirect effect of age on growth work motives via FTP at Time 2 and promotion focus at Time 3 (standardized effect = $-.008, p = .007$). Finally, Hypothesis 6 was supported; growth work motives at Time 4 have a positive association with motivation to continue working at Time 4 ($\beta = .11, p = .02$). Thus, a change in growth work motives has a positive association with a change in motivation to continue working. We also tested models with paths from age at Time 1, FTP at Time 2, and promotion focus at Time 3 to motivation to continue working at Time 4. These models were not significantly better than our hypothesized model and these paths were not significant. In addition, the indirect effect of age on motivation to continue working via FTP at Time 2, promotion focus at Time 3, and growth work motives at Time 4 was significant (standardized effect = $-.001, p = .024$).¹

We also tested our hypotheses while controlling for educational level, gender and self-reported health. These analyses obtained similar results. Finally, since we did not measure promotion focus at Time 1 we could not test the alternative model in which FTP and promotion focus were reversed. However, we did measure FTP at Time 3, and therefore we tested a cross-lagged model with FTP and promotion focus at Times 2 and 3. In this model FTP at Time 2 had a significant cross-lagged effect on promotion focus at Time 3 ($\beta = .16, p$

¹ We also tested our hypotheses with the full 10 item FTP scale of Carstensen and Lang (1996) and found similar results. We also tested our hypotheses with the items that comprised the remaining opportunities factor and found that all hypotheses except Hypothesis 3 were supported.

= .001) and promotion focus at Time 2 had a nonsignificant cross-lagged effect on FTP at Time 3 ($p = .321$).

Discussion

Our findings provide important insights in the age-related process variables that explain changes in work motivation over time and previously observed mean-level declines in work-related growth motives with calendar age. Our results also extend previous findings by Kooij and Van De Voorde (2011) and others (e.g., Bal et al., 2010; Kooij et al., 2013) by showing the role of promotion focus in mediating the FTP – growth work motives relation. Consistent with the SOC model, we found that the impact of age on promotion focus was mediated by FTP. We further found that promotion focus mediated the relationship between FTP and growth work motives, and evidence for mediation of FTP and promotion focus in the relationship between age and growth work motives over a three-year period of time. Taken together, these findings support the notion that age-related declines in growth work motives are not simply a matter of calendar age, but rather a consequence of how older workers construe future time and the effects of this perspective on regulatory goal focus. Since older workers hold a shorter future time perspective, they perceive insufficient time to strive for desired maximal outcomes and report lower levels of promotion orientation. Our finding that FTP (measured as remaining opportunities rather than remaining time) did not mediate the age – promotion focus relation suggests that resource limitations in time rather than opportunities are more important for understanding age-related changes in work-related motives. Lower levels of promotion focus in turn diminish work-related goal strivings related to aspirations and accomplishments, thus resulting in lower work-related growth motive strength. Finally, we demonstrated that lower growth work motives were associated with lower levels of motivation to continue working – a particularly important work outcome for organizations interested in retaining older workers.

Limitations and Implications for Future Research

The use of a four-wave, three-year longitudinal design to examine age-related process variables that explain changes in work motivation is a major strength of this study.

Nonetheless, the longitudinal design used in this study is not without limitations. In line with previous studies (e.g., De Lange, Taris, Jansen, Kompier, Houtman & Bongers, 2010) we employed a time lag of one year. However, theory on the appropriate time lag is lacking. The chosen time lag might be too short to fully capture the associations between age, future time perspective and promotion focus. As noted by a reviewer, it is also not possible in our study to distinguish between the effects of age on these variables across the span of one year from age-related, intra-individual changes in these motivational variables across the lifespan. In addition, our sample consists of university employees. Therefore, future research should replicate our findings with longer time lags and other occupational groups.

Another limitation of this study is that we only included growth work motives in our study. However, other work motives might influence motivation to continue working as well. Future research could include multiple work motives, such as growth, social, and generativity motives to examine their combined effects on motivation to continue working. Despite these limitations, this study has a number of theoretical and practical implications.

Theoretical and Practical Implications

The findings of this study have several important theoretical implications. First, this is the first study to explain and demonstrate why work motivation changes with age over time. Building on earlier studies (Kooij & Van De Voorde, 2011; Kooij et al., 2013) and based on the SOC model and literature, we identified two age-related process variables: FTP and promotion focus. We found that intra-individual changes in both variables mediated the relationship between calendar age and work-related growth motives, which in turn influenced motivation to continue working. As proposed by the SOC model, increased resource

limitations in old age make it increasingly necessary and beneficial to stop investing resources in striving for gains. The results obtained in this study suggest that time represents an important but often neglected resource, and that individual differences in future time perspective measured as remaining time may provide an effective index of perceived limitations in this resource.

Our findings highlight the importance of remaining time FTP as a potent index of multi-dimensional age-related processes and offer researchers a new direction for investigating aging in general and at work. Evidence for the mediational influence of FTP measured as remaining time, rather than remaining opportunities, on the relationship between calendar age and promotion focus suggests that future *time* perspective explains unique and additional variance in goal orientation and work motives independent of chronological age. Earlier studies (e.g., Zacher et al., 2010) found that remaining occupational opportunities mediate the age – work performance association. This type of research on aging could build on the results of this study and thus include remaining time FTP as an age-related mediator in associations of calendar age with individual (worker) outcomes. In addition, our findings provide support for more in-depth studies examining the relationship between perceived remaining time and distinct age-related processes in different systems (e.g., physical, intellectual, social).

Finally, this study extends the literature on FTP and work outcomes. Previous studies on FTP and work outcomes (e.g., Bal et al., 2010; Kooij & Van De Voorde, 2011) found that FTP exerts a positive influence on developmental psychological contract fulfillment and growth work motives. The mediating role of promotion focus in the FTP – growth work motives relation and the positive association between growth work motives and motivation to continue working found in this study more clearly delineate the motivational processes that underlie observed relations between FTP and work outcomes.

From a practical perspective, the results indicate that the effects of calendar age on work motivation and outcomes may be diminished through organizational practices that promote higher levels of FTP and promotion focus among employees. Future research to examine the impact of job design, work wellness programs, and other human resource management practices on perceptions of remaining time and promotion focus among older workers represents an important next step in the development of work environments that promote successful aging at work.

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TABLE 1. Results of scale analyses

Model	CFA	χ^2	df	CFI	RMSEA	$\Delta \chi^2$	Δdf
M1 T2	4 factors	247.39 ^a	113	.938	.064		
M2 T2	3 factors	577.03 ^a	116	.789	.117	330.21 ^a	3
M3 T2	3 factors	394.96 ^a	116	.872	.091	369.63 ^a	3
M4 T2	3 factors	746.44 ^a	116	.711	.137	499.61 ^a	3
M5 T2	1 factor	1230.80 ^a	119	.491	.179	1209.33 ^a	6
M1 T3	4 factors	215.84 ^a	113	.958	.056		
M2 T3	3 factors	585.82 ^a	116	.810	.118	370.16 ^a	3
M3 T3	3 factors	493.707 ^a	116	.847	.106	484.22 ^a	3
M4 T3	3 factors	817.82 ^a	116	.716	.144	602.08 ^a	3
M5 T3	1 factor	1451.32 ^a	119	.461	.196	1513.50 ^a	6
M1 T4	4 factors	219.93 ^a	113	.959	.057		
M2 T4	3 factors	727.52 ^a	116	.764	.135	507.09 ^a	3
M3 T4	3 factors	513.63 ^a	116	.847	.109	482.26 ^a	3
M4 T4	3 factors	730.43 ^a	116	.763	.135	507.14 ^a	3
M5 T4	1 factor	1512.61 ^a	119	.463	.201	1534.73 ^a	6

Note. $N = 293$; ^a $p < .001$; M1 = four-factor model; M2 = three-factor model in which promotion focus and growth work motives loaded on the same factor; M3 = three-factor model in which FTP and promotion focus loaded on the same factor; M4 = three-factor model in which growth work motives and motivation to continue working loaded on the same factor; M5 = single-factor model; CFI = comparative fit index; RMSEA = root-mean-square error of approximation

TABLE 2. Means, Standard Deviations and Correlations

Variable	Mean	SD	1	2	3	4	5	6	7	8	9
1. Age T1	45.20	10.46									
2. FTP T1	3.06	.85	-.60 ^a	.77							
3. FTP T2	3.06	.81	-.59 ^a	.67 ^a	.73						
4. Promotion focus T2	5.15	1.51	-.35 ^a	.41 ^a	.36 ^a	.86					
5. Promotion focus T3	5.12	1.54	-.41 ^a	.44 ^a	.36 ^a	.69 ^a	.86				
6. Growth work motives T3	5.94	.74	-.09	.24 ^a	.20 ^a	.38 ^a	.40 ^a	.85			
7. Growth work motives T4	5.93	.81	-.09	.18**	.17**	.34 ^a	.40 ^a	.62 ^a	.89		
8. Motivation to continue T3	3.77	1.11	-.06	.13*	.17**	.28 ^a	.29 ^a	.30 ^a	.35 ^a	.92	
9. Motivation to continue T4	3.87	1.02	-.01	.15**	.19**	.25 ^a	.24 ^a	.25 ^a	.35 ^a	.72 ^a	.91

Note. $N = 301$; ^a $p < .001$; ** $p < .01$; * $p < .05$. Reliabilities are reported along the diagonal. T = Time

TABLE 3. Results of model comparisons

Model		χ^2	df	CFI	RMSEA	$\Delta \chi^2$	Δdf
M1	Hypothesized model	637.91 ^a	213	.91	.08		
M2	Mediation model including path from age to promotion focus	637.80 ^a	212	.91	.08	0.11	1
M3	Mediation model including path from FTP to growth work motives	636.56 ^a	212	.91	.08	1.35	1
M4	Mediation model including path from age to growth work motives	637.23 ^a	212	.91	.08	0.68	1

Note. $N = 301$; * $p < .05$

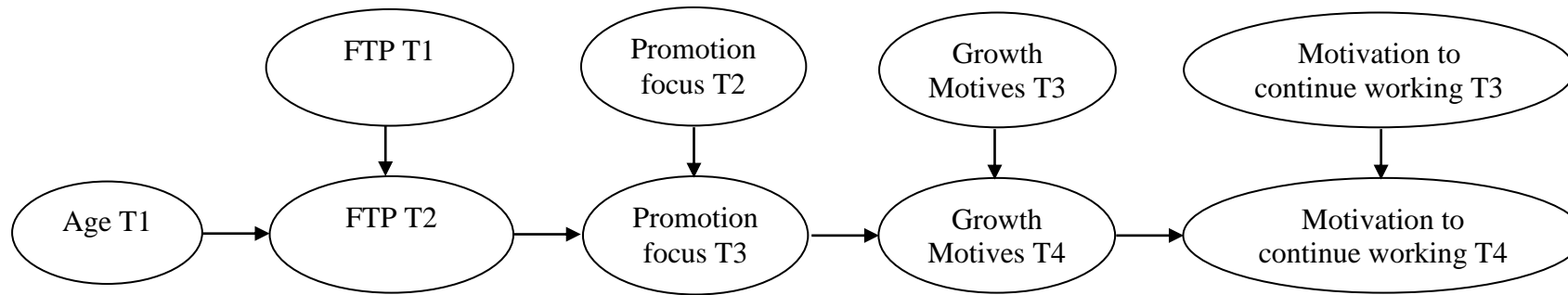


FIGURE 1. Research model

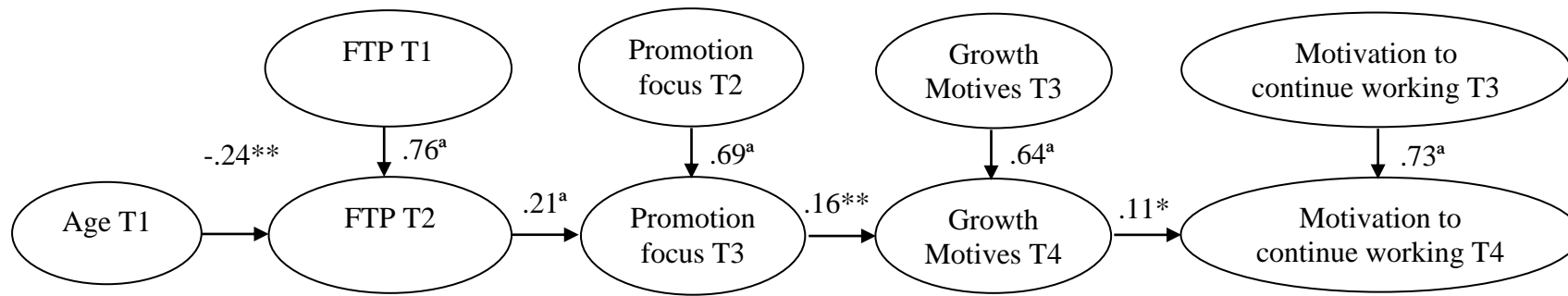


FIGURE 2. Hypothesized model, all standardized effects, ^a $p < .001$, $^{**}p < .01$, ($N = 301$)